CLAIMS

21. (New) A two-dimensional imaging optical instrument for acquiring images of a two-dimensional sample area, comprising:

a two-dimensional spatial detector having detector elements aligned along a first axis and a second axis,

a two-dimensional variable filter having filter characteristics that vary in at least one dimension, and being located in an optical path between the two-dimensional sample area and the two-dimensional spatial detector, and

wherein the instrument defines the optical path as a two-dimensional optical path that simultaneously conveys radiation from different positions in the sample area to different detector elements through portions of the spatial detector having different ones of the filter characteristics.

22. (New) The apparatus of claim 21 wherein the variable filter is a variable band-pass filter.

23. (New) The apparatus of claim 21 wherein the variable filter is a continuously variable filter.

24. (New) The apparatus of claim 21 further including an infrared source and wherein the spatial detector is an infrared detector.

25. (New) The apparatus of claim 21 further including a near infrared source and wherein the spatial detector is a near infrared detector.

26. (New) The apparatus of claim 21 further including an ultraviolet source and wherein the spatial detector is an ultraviolet detector.

27. (New) The apparatus of claim 21 further including a visible light source and wherein the spatial detector is a visible light detector.

28. (New) The apparatus of claim 21 further including means for moving the sample relative to the spatial detector.

29. (New) The apparatus of claim 21 further including logic responsive to the spatial detector for combining a series of images from the spatial detector to obtain full-range spectral images.

30. (New) The apparatus of claim 21 further including a first stage optic between the sample and the detector.

31. (New) The apparatus of claim 21 further including logic responsive to the detector to selectively display spectral information that relates to at least one predetermined substance in the sample.

32. (New) The apparatus of claim 21 further including multivariate spectral analysis logic responsive to the detector.

33. (New) The apparatus of claim 21 wherein the spatial detector is an integrated semiconductor array detector.

34. (New) An optical method, comprising:

substantially simultaneously filtering a plurality of radiation beam portions from different positions in a sample area with different filter characteristics, and

substantially simultaneously detecting the plurality of radiation beam portions with different parts of a spatial detector after filtering the radiation beam portions in the step of filtering.

35. (New) The method of claim 34 wherein the steps of detecting acquires data representing a series of variably filtered two-dimensional images, and further including a step of combining portions of the variably filtered images to obtain spectral images.

36. (New) The method of claim 35 wherein the steps of filtering and detecting are applied to radiation from a pharmaceutical composition and wherein the step of combining derives a spectral image descriptive of the contents of the pharmaceutical composition.

37. (New) The method of claim 35 wherein the step of combining results in one or more infrared images.

38. (New) The method of claim 35 wherein the step of combining results in one or more near-infrared images.

39. (New) The method of claim 34 further including a step of performing a multivariate spectral analysis on results of the steps of detecting.

40. (New) The method of claim 34 further including a step of selectively displaying spectral information that relates to at least one predetermined substance in the sample.

41. (New) The method of claim 34 further including a step of providing a reference substance in the sample area.